

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 110087401	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/SE 2003/001587	International filing date (day/month/year) 10 October 2003	(Earliest) Priority Date (day/month/year) 11 October 2002
Applicant Guss, Benqt et al		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 8 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☒ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☒ Certain claims were found unsearchable (see Box No. II)

3. ☐ Unity of invention is lacking (see Box No. III)

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. _____

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☒ none of the figures is to be published with the abstract.

Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item I.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:
 - a. type of material
 - ☒ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material
 - ☒ in written format
 - ☒ in computer readable form
 - c. time of filing/furnishing
 - ☒ contained in the international application as filed
 - ☐ filed together with the international application in computer readable form
 - ☒ furnished subsequently to this Authority for the purposes of search
2. ☒ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: **16-18**
because they relate to subject matter not required to be searched by this Authority, namely:
see next sheet*
2. ☒ Claims Nos.: **20 (partially)**
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
see next sheet**
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

*

Claims 16-18 relate to methods of treatment of the human or animal body by surgery or by therapy or diagnostic methods practised on the human or animal body (PCT Rule 39.1(iv)). Nevertheless, a search has been executed for these claims. The search has been based on the alleged effects of the compounds or compositions.

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Present claim 20 relates to an extremely large number of possible protein fragments due to the expression "fragment thereof". Support within the meaning of Article 6 PCT and disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the protein fragments. In the present case, the claim so lacks support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible.

Consequently, the search has been carried out for those parts of the claims which appear to be supported and disclosed, namely those parts related to the protein Sc1C and the fragment Sc1C1, as well as general aspects thereof.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established will not be, the subject of an international preliminary examination (Rule 66.1(e) PCT). This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 2003/001587

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A61K 39/09, C07K 14/315, C07K 16/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: C07K, A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI-DATA, PAJ, BIOSIS, MEDLINE, CHEM. ABS DATA

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	FEMS Microbiology Letters, Volume 222, 2003, Jonas Lannergård et al: "CNE, a collagen-binding protein of Streptococcus equi", page 69 - page 74, abstract; page 70, column 2, paragraph 1; page 73, column 2, paragraph 2	12,19
P,Y	--	3,5,7-19
X	Hans Lindmark, "Acta Universitatis Agriculturae Sueciae, AGRARIA 139, Characterization of Adhesive Extracellular Proteins from Streptococcus equi", 1999, Doctoral thesis Swedish University of Agricultural Sciences, Uppsala, page 1 - page 49, abstract; page 25 - page 35	1-2,4-19
Y	--	2-5,7-19

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

12 January 2004

Date of mailing of the international search report

20-01-2004

Name and mailing address of the ISA/

Swedish Patent Office

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Hans Lindmark et al, "Acta Universitatis Agruculturae Sueciae, AGRARIA 139, Characterization of Adhesive Extracellular Proteins from Streptococcus equi", 1999, The NH2-terminal half of protein FNZ binds fibronectin and is secreted in S. equi subsp. equi but not in subsp. zooepidemicus, Swedish University of Agricultural Sciences, Uppsala, page 1 - page 13, abstract; page 93, column 2, paragraph 2; page 96	1-2,4-19
Y	--	2-5,7-19
X	Research in Veterinary Science, Volume 66, 1999, Hans Lindmark et al: "Pulsed-field gel electrophoresis and distribution of the genes zag and fnz in isolates of Streptococcus equi", page 93 - page 99, abstract; page 93, column 2, paragraph 2; page 96	1-2,4-19
Y	--	2,5,7-19
X	Infection and Immunity, Volume 67, no. 5, May 1999, Hans Lindmark et al: "SFS, a Novel Fibronectin-Binding Protein from Streptococcus equi, Inhibits the Binding between Fibronectin and Collagen", page 2383 - page 2388, abstract; page 2384, column 1, paragraph 5	12,19
Y	--	2,5,7-19
X	Infection and Immunity, Volume 69, no. 5, May 2001, Hans Lindmark et al: "Comparison of the Fibronectin-Binding Protein FNE from Streptococcus equi Subspecies equi with FNZ from S. equi Subspecies zooepidemicus Reveals a Major and Conserved Difference", page 3159 - page 3163, abstract; page 3160, column 2, paragraph 3	12,19
Y	--	2,4,5,7-19

INTERNATIONAL SEARCH REPORT

International application No.

PCT/E 2003/001587

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X	WO 0037496 A1 (GUSS, BENGT ET AL), 29 June 2000 (29.06.2000), claims	12,19
Y	---	2,5,7-19
X	WO 9507296 A1 (GUSS, BENGT ET AL), 16 March 1995 (16.03.1995), abstract; claims	1,6,8-9,11
Y	-----	2,3,7-19

INTERNATIONAL SEARCH REPORT

Information on patent family members

01/12/2003

International application No.

PCT/JP 2003/001587

WO	0037496	A1	29/06/2000	AU	3094700	A	12/07/2000
				CA	2355831	A	29/06/2000
				EP	1151003	A	07/11/2001
				SE	9804491	D	00/00/0000
				US	2003165527	A	04/09/2003

WO	9507296	A1	16/03/1995	AT	194360	T	15/07/2000
				AU	7628194	A	27/03/1995
				CA	2176230	A	16/03/1995
				DE	69425149	D,T	15/03/2001
				EP	0724596	A,B	07/08/1996
				ES	2149884	T	16/11/2000
				SE	9302855	D	00/00/0000
				US	6100055	A	08/08/2000

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

The present invention is concerned with an antigenic composition comprising at least one antigen that comprises at least one antigenic epitope or antigenic determinant derived from a protein present in one or both of *S. equi* subsp. *Equi* and subsp. *Zooepidemicus* and use thereof for immunization of non-human mammals against *S. equi* subsp. *Equi* and/or subsp. *Zooepidemicus*. The present invention also discloses a vaccine composition comprising the aforesaid antigenic composition as immunizing component. The antigens used are EAG, FNZ, SFS, SEC and ScLC.